



JPW 1753
/

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

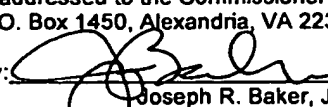
In re Patent Application of

Nathan S. Lewis et al.

Application No.: 10/017,221

Filed: December 13, 2001

For: METHOD AND SYSTEM FOR
DETERMINING ANALYTE ACTIVITY

) Group Art Unit: 1753
) Examiner: ALEXANDER NOGUEROLA
) Confirmation No.: 9894
) Certificate of Mailing
) I hereby certify that this correspondence is being
) deposited with the United States Postal Service
) as First Class Mail, on September 12, 2005 and
) is addressed to the Commissioner for Patents,
) P.O. Box 1450, Alexandria, VA 22313-1450.
) By: 
) Joseph R. Baker, Jr.

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In accordance with the duty of disclosure as set forth in 37 C.F.R. § 1.56, the accompanying information is being submitted in accordance with 37 C.F.R. §§ 1.97 and 1.98.

Pursuant to 37 C.F.R. § 1.98, a copy of each of the documents cited is enclosed. Pursuant to 37 C.F.R. § 1.98, a copy of each of the documents cited is enclosed. However, copies of the listed U.S. patents and U.S. patent application publications are not enclosed since it is no longer required according to the July 11, 2003 waiver of the requirement for copies of cited U.S. patents and U.S. patent application publications.

The documents are being submitted after a first Office Action on the merits but prior to the closing of prosecution, therefore under 37 C.F.R. § 1.97(c), the fee set forth in 37 C.F.R. § 1.17(p) is enclosed.

To assist the Examiner, the documents are listed on the attached form PTO-1449. It is respectfully requested that an Examiner initialed copy of this form be returned to the undersigned.

09/16/2005 NNGUYEN1 00000038 10017221

01 FC:1806

180.00 0P

Date September 12, 2005

12230 El Camino Real
Suite 300
San Diego, CA 92130-2090
(858) 509-7300

Respectfully submitted,

BUCHANAN INGERSOLL PC

By: 
Joseph R. Baker, Jr.
Registration No. 40,900

Buchanan Ingersoll PC
ATTORNEYS
Including attorneys from Burns Doane Swecker & Mathis

(8/05)

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

Complete if Known

Application Number	10/017,221
Filing Date	December 13, 2001
First Named Inventor	Nathan S. Lewis et al.
Examiner Name	Alexander Nogueraola
Attorney Docket Number	034345-091

Sheet 1 of 5

U.S. PATENT DOCUMENTS

Examiner Initials	Document Number	Kind Code (if known)	Name of Patentee or Applicant of Cited Document	Issue/Publication Date (MM-DD-YYYY)
an	6,844,197		Doleman et al.	01-18-2005
an	6,841,391		Lewis et al.	01-11-2005
an	6,773,926		Freund et al.	08-10-2004
an	6,759,010		Lewis et al.	07-06-2004
an	6,752,964		Grubbs et al.	06-22-2004
an	6,631,333		Lewis et al.	10-07-2003
an	6,610,367		Lewis et al.	08-26-2003
an	6,571,603		Doleman et al.	06-03-2003
an	6,537,498		Lewis et al.	03-25-2003
an	6,495,892		Goodman et al.	12-17-2002
an	6,467,333		Lewis et al.	10-22-2002
an	6,455,319		Lewis et al.	09-24-2002
an	6,387,329		Lewis et al.	05-14-2002
an	6,331,244		Lewis et al.	12-18-2001
an	6,319,724		Lewis et al.	11-20-2001
an	6,305,214		Schattke et al.	10-23-2001
an	6,244,096		Lewis et al.	06-12-2001
an	6,028,608		Jenkins	02-22-2000
an	6,007,775		Yager	12-28-1999
an	5,948,684		Weigl et al.	09-07-1999
an	5,928,609		Gibson et al.	07-27-1999
an	5,913,235		Silenius et al.	06-15-1999
an	5,832,411		Schatzmann et al.	11-03-1998
an	5,807,701		Payne et al.	09-15-1998
an	5,627,329		Krishnan et al.	05-06-1997
an	5,591,898		Mayer	01-07-1997
an	5,469,369		Rose-Phersson et al.	11-21-1995
an	5,415,893		Wiersma et al.	05-16-1995
an	5,278,501		Guilfoyle	01-11-1994
an	5,212,447		Paltiel	05-18-1993
an	4,946,562		Guruswamy	08-07-1990
an	4,914,608		LeBihan et al.	04-03-1990
an	4,424,487		Lauffer	01-03-1984
an	3,677,071		Martin	07-18-1972
an	20040147038		Lewis et al.	07-29-2004
an	20040042933		Lewis et al.	03-04-2004
an	20040033165		Lewis et al.	02-19-2004
an	20030159927		Lewis et al.	08-28-2003
an	20030136960		Goodman et al.	07-24-2003
an	20020197390		Lewis et al.	12-26-2002
an	20020192117		Lewis et al.	12-19-2002
an	20020143477		Lewis et al.	10-03-2002
an	20020141901		Lewis et al.	10-03-2002
an	20020081232		Lewis et al.	06-27-2002
an	20020017125		Lewis et al.	02-14-2002
an	20020005580		Goodman et al.	01-17-2002
an	20010041366		Lewis et al.	11-15-2001

Examiner Signature	<i>Alexander Nogueraola</i>	Date Considered	10/20/05
--------------------	-----------------------------	-----------------	----------

*EXAMINER: Initial if reference considered whether or not citation is in conformance with M.P.E.P. § 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

Complete If Known

Application Number	10/017,221
Filing Date	December 13, 2001
First Named Inventor	Nathan S. Lewis et al.
Examiner Name	Alexander Noguera
Attorney Docket Number	034345-091

Sheet 2 of 5

SEP 15 2005

FOREIGN PATENT DOCUMENTS

Examiner Initials	Document Number	Kind Code (if known)	Country	Date of Publication (MM-DD-YYYY)	STATUS						
					Translation	Partial Translation	Eng. Lang. Summary	Search Report	IPER	Abstract	Cited In Spec
an	3728452A1		DE	03-09-1989						X	
an	0 794 428A1		EP	10-09-1997							
an	61-003039		JP	01-09-1986						X	
an	04-002958		JP	01-07-1992						X	
an	08-264038		JP	10-11-1996						X	

NON-PATENT LITERATURE DOCUMENTS

Examiner Initials	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
an	Barisci et al., "Conducting Polymer Sensors," <u>TRIP</u> , Vol. 4, No. 9, pp. 307-311 (September 1996)
an	Wehrens et al., Calibration of an array of voltammetric microelectrodes," <u>Analytica Chimica Acta</u> , No. 334, pp. 93-101, 1996
an	Williams et al., "Resolving combustible gas mixtures using gas sensitive resistors with arrays of electrodes," <u>J. Chem. Soc., Faraday Trans.</u> , Vol. 92, No. 22, pp. 4497-4504, 1996
an	Shurmer et al., "Integrated Arrays of Gas Sensors Using Conducting Polymers with Molecular-Sieves," <u>Sensors and Actuators</u> , Vol. 4, pp. 29-33, 1991
an	Slater et al., "Examination of Ammonia Poly(Pyrrole) Interactions by Piezoelectric and Conductivity Measurements," <u>Analyst</u> , Vol. 116, pp. 1125-1130, November, 1991.
an	Grate et al., "Acoustic-wave microsensors," <u>Anal. Chem.</u> , Vol. 65, No. 22, pp. A987-A996, November 15, 1993
an	Grate et al., "Acoustic-wave microsensors," <u>Anal. Chem.</u> , Vol. 65, No. 21, pp. A940-A948, November 1, 1993
an	Cornila et al., "Capacitive sensors in CMOS technology with polymer coating," <u>Sensors and Actuators</u> , Vol. 25, pp. 357-361, 1995
an	Johnson et al., "Identification of multiple analytes using an optical sensor array and pattern recognition neural network," <u>Anal. Chem.</u> , Vol. 69, No. 22, pp. 4641-4648, November 15, 1997
an	Dickinson et al., "A chemical-detecting system based on a cross-reactive optical sensor array," <u>Nature</u> , Vol. 382, pp. 697-700, August, 1996
an	White et al., "Rapid analyte recognition in a device based on optical sensors and the olfactory system," <u>Anal. Chem.</u> , Vol. 68, No. 13, pp. 2191-2202, July 1, 1996
an	Harsanyi, "Polymer films in sensor applications," <u>Table of Contents</u> Technomic Publishing Co., Inc., Lancaster, 1995
an	Albert et al., "Cross-Reactive Chemical Sensor Arrays," <u>Chem. Rev.</u> , Vol. 100, No. 7, pp. 2595-2626, 2000
an	Doleman et al., "Use of compatible polymer blends to fabricate arrays of carbon black-polymer composite vapor detectors," <u>Anal. Chem.</u> , Vol. 70, No. 13, pp. 2560-2564, July 1, 1998.
an	Benes et al., "Sensors based on piezoelectric resonators," <u>Sensors and Actuators</u> , Vol. A48, No. 1, pp. 1-21, 1995
an	Grate et al., "Surface acoustic-wave vapor sensor based on resonator devices," <u>Anal. Chem.</u> , Vol. 63, No. 17, pp. 1719-1727, September 1, 1991
an	Briglin et al., "Progress in use of carbon black-polymer composite vapor detector arrays for land mine detection," <u>Proc. SPIE-Int. Eng.</u> , Vol. 4038, Part One of Two Parts, pp. 530-538, April 24-28, 2000, Orlando, Florida, USA

Examiner Signature	<i>Alexander Noguera</i>	Date Considered	10/20/05
-----------------------	--------------------------	--------------------	----------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with M.P.E.P. § 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

Complete if Known

Application Number	10/017,221
Filing Date	December 13, 2001
First Named Inventor	Nathan S. Lewis et al.
Examiner Name	Alexander Noguerola
Attorney Docket Number	034345-091

Sheets 3 of 5

SEP 15 2005

NON-PATENT LITERATURE DOCUMENTS

Initials	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
Gr	Wilmshurt, "Signal recovery from noise in electronic instrumentation," Adam Hilger Ltd. Boston, pp. 60-68, 1985.
An	Larry et al., "Thick-film technology: An introduction to the materials," <u>IEEE Transactions on Components, Hybrids, and Manufacturing Technology</u> , Vol. CHMT-3, No. 2, pp. 211-225, June, 1980
An	Weissman et al., "1/f noise and other slow, nonexponential kinetics in condense matter," <u>Rev. Mod. Phys.</u> , Vol. 60, No. 2, pp. 537-571, April 1988
An	Dziedzic et al, 1/f noise I polymer thick-film resistors," <u>J. Phys. D-Appl. Phys.</u> , Vol. 31, pp. 2091-2097, 1998
An	Scofield et al., "Exclusion of temperature fluctuations as the source of 1/f noise in metal films," <u>Phys. Rev.</u> , Vol. 24, No. 12, pp. 7450-7453, December 15, 1981
An	Fu et al., "Electrical characteristics of polymer thick film resistors, Part I: Experimental results," <u>IEEE Transactions on Components, Hybrids, and Manufacturing Technology</u> , Vol. 4, No. 3, pp. 283-288, September 1981
An	Deen et al., "Low frequency noise in heavily doped polysilicon thin film resistors," <u>J. Vac. Sci. Technol.</u> , Vol. 16, No. 4, pp. 1881-1884, July/August 1998
An	Severin et al., "Relationships among resonant frequency changes on a coated quartz crystal microbalance, thickness changes and resistance responses of polymer-carbon black composite chemiresistors," <u>Anal. Chem.</u> , Vol. 72, No. 9, pp. 2008-2015, May 1, 2000.
An	Peled et al., "1/f noise I bismuth ruthenate based thick-film resistors," <u>IEEE Transactions on Components, Packaging, and Manufacturing Technology</u> , Part A20, Vol. 20, No. 3, pp. 355-360, September 1997
An	Horowitz et al., "The Art of electronics," 2 nd ed. Cambridge University Press, Cambridge, 1989
An	Lu, "Applications of piezoelectric quartz crystal microbalances," pp. 19-61, Elsevier, New York, 1984
An	De Lacy Costello et al., "Novel composite organic-inorganic semiconductor sensors for the quantitative detection of target organic vapours," <u>J. Matter. Chem.</u> , Vol. 6, No. 3, pp. 289-294 (1996)
An	Wampler, "Composites of polypyrrole and carbon black: Part III. Chemical synthesis and characterization," <u>J. Matter. Res.</u> , Vol. 10, No. 7, pp. 1811-1822, July 1995.
An	Hongshi et al., "Preparation and characterization of polyaniline-palladium composite films," <u>Mat. Res. Soc. Symp. Proc.</u> , Vol. 369, pp. 581-585, (1995)
An	Yassar et al., "Preparation and electroactivity of poly(thiophene) electrodes modified by electrodeposition of palladium particles," <u>J. Electroanal. Chem.</u> , Vol. 255, pp. 53-69, 1988
An	Grimshaw et al., "Redox behaviour of polypyrrole films containing naphthoquinone and benzoquinone groups," <u>J. Electroanal. Chem.</u> , Vol. 281, pp.125-132 (1990)
An	Iyoda et al., "The 100-Å-order depth profile control of polypyrrole-poly(3-methylthiophene) composite thin film by potential-programmed electropolymerization," <u>J. Phys. Chem.</u> , Vol. 95, No. 13, pp. 5215-5220, (1991)
An	Dogan et al., "Conducting polymers of aniline II. A composite as a gas sensor," <u>Synthetic Metals</u> , Vol. 60, pp. 27-30, (1993)
An	Elilol et al., "Kinetic studies in the electroinitiated polymerization of N-vinylcarbazole and related conducting polymer composites," <u>J.M.S. - Pure Appl. Chem.</u> Vol. A31, No. 5, pp. 593-611, (1994)
An	Huang et al., "Coating of uniform inorganic particles with polymers," <u>J. Colloid. And Inter. Sci.</u> , Vol. 170, pp. 275-283, (1995)
An	Selampinar et al., "A conducting composite of polypyrrole II. As a gas sensor," <u>Synth. Metals</u> , Vol. 68, pp. 109-116, (1995)
An	Hepel et al., "Effect of the composition of polypyrrole substrate on the electrodeposition of copper and nickel," <u>J. Electrochem. Soc.</u> , Vol. 143, No. 2, pp. 498-505, February, 1996
An	Collins et al., "Conductive polymer-coated fabrics for chemical sensing," <u>Synth. Metals</u> , Vol. 78, pp. 93-101, (1996)

Examiner Signature	<i>Alb. Noguerola</i>	Date Considered	10/20/05
--------------------	-----------------------	-----------------	----------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with M.P.E.P. § 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

Complete if Known

Application Number	10/017,221
Filing Date	December 13, 2001
First Named Inventor	Nathan S. Lewis et al.
Examiner Name	Alexander Noguerola
Attorney Docket Number	034345-091

Sheet 3 of 5

SEP 16 2005

NON-PATENT LITERATURE DOCUMENTS

Examiner's Initials	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
An	Rajeshwar et al., "Carbon black and carbon black-conducting polymer composites for environmental applications," Preprints of papers - American Chemical Society, Division of Fuel Chemistry, Vol. 41, pp. 498-502, (1996)
An	Bozkurt et al., "Conducting polymer composites of polypyrrole and polyindene," <u>Synth. Metals</u> , Vol. 82, pp. 41-46, (1996)
An	Talu et al., "Electrochemical copolymerization of thiophene and aniline," <u>J. of Polymer Sci., Part A: Polymer Chemistry</u> , Vol. 34, pp. 2981-2989, (1996)
An	Gibson et al., "Biomimicry of smell using organic electroconductive polymer sensor arrays: Applications in an electronic nose," <u>Polymeric Materials Sci. and Eng.</u> , Vol. 76, pp. 515-516, (1997)
An	Gibson et al., "Detection and simultaneous identification of microorganisms from headspace samples using an electronic nose," <u>Sensors and Actuators B</u> , Vol. 44, pp. 413-422, (1997)
An	EDN, "Design Feature: Electronic Olfactory Sensors," Ed. Jim Lipman, pp. 59-64 , December 17, 1998
An	George et al., "Progress on Determining the Vapor Signature of a Buried Landmine," <u>SPIE</u> , Vol. 3710, pp. 258-269, April 1999
An	La Grone et al., "Landmine Detection by Chemical Signature: Detection of Vapors of Nitroaromatic Compounds by Fluorescence Quenching of Novel Polymer Materials," <u>SPIE</u> , Vol. 3710, pp. 409-420, April 1999
An	Zeller et al., "Establishing a Limit of Recognition for a Vapor Sensor Array," <u>Anal. Chem.</u> , 70(19):4191-4201, 1998
An	Patrash et al., "Characterization of Polymeric Surface Acoustic Wave Sensor Coatings and Semiempirical Models of Sensor Responses to Organic Vapors," <u>Anal. Chem.</u> , 65(15):2055-2066, August 1, 1993
An	Severin et al., "An Investigation of the Concentration Dependence and Response to Analyte Mixtures of Carbon Black/Insulating ORganic Polymer COmposite Vaprot Detectors," <u>Anal. Chem.</u> , 72(4): 658-668, February 15, 2000
An	Doleman et al., "Trends in odor intensity for human and electronic noses: Relative roles of odorant vapor pressure vs. molecularly specific odorant binding," <u>Proc. Natl. Acad. Sci. USA</u> , 95:5442-5447, May 1998
An	Galal, "Electrocatalytic oxidation of some biologically important compounds at conducting polymer electrodes modified by metal complexes," <u>J. Solid State Electrochem.</u> , 2:7-15, 1998
An	Sestak et al., "Selective hydrogen sensors based on Conducting Polymers," <u>SPIE</u> , Vol. 3241, pp. 118-129, 1997
An	Fourrier-Lamer et al., "Studies of semiconducting organic polymer-graphite composites from D.C. to microwave frequencies," <u>Synthetic Metals</u> , Vol. 24, pp. 95-105, 1988
An	Maxfield et al., "Composite Electrodes Containing Conducting Polymers and Li Alloys," <u>J. Electrochem. Soc.: Electrochemical Science and Technology</u> , 135(2):299-305, February 1988
An	Reynolds et al., "Optical Absorption, Luminescence, and Redox Switching Properties of Polyphenylene Derivatives," <u>Mat. Res. Soc. Symp. Proc.</u> , Vol. 328, pp. 191-195, 1994
An	Frackowiak et al., "Interaction Between Electroconducting Polymers and C60," <u>J. Phys. Chem Solids</u> , 57(6-8):983-989, 1996
	Toppare, "Synthesis and characterization of conducting polymers and their composites," <u>Tr. J. of Chemistry</u>, Vol. 21, pp. 30-34, 1997
An	De Wit et al., "Application of Poly(thienylene vinylene) as a chemiresistor for organic Vapours," <u>Synthetic Metals</u> , Vol. 85, pp. 1303-1304, 1997
An	Talaie, "Conducting polymer based pH detector: a new outlook to pH sensing technology," <u>Polymer</u> , 38(5):1145-1150, 1997
An	Kuwabata et al., "Charge-Discharge Properties of Composite Films of Polyaniline and Crystalline V2O5 Particles," <u>J. Electrochem. Soc.</u> , 145(8):2707-2710, August 1998
An	Torsi et al., "Conducting polymers doped with metallic inclusions: New materials for gas sensors," <u>Sensors and Actuators B</u> , Vol. 48, pp. 362-367, 1998

Examiner Signature	<i>Alexander Noguerola</i>	Date Considered	10/20/05
--------------------	----------------------------	-----------------	----------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with M.P.E.P. § 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT****Complete if Known**

Application Number	10/017,221
Filing Date	December 13, 2001
First Named Inventor	Nathan S. Lewis et al.
Examiner Name	Alexander Noguerola
Attorney Docket Number	034345-091

Sheet	5	of	5
-------	---	----	---

SEP 15 2005

NON-PATENT LITERATURE DOCUMENTSExaminer
Initials

Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.

Examiner		Date	
Signature		Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with M.P.E.P. § 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.
CA 95191.1